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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,923	11/18/2003	Angeliki Alexiou	5	4221

7590 11/01/2006

Docket Administrator  
(Room 3J-219)  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NJ 07733-3030

EXAMINER

GESESSE, TILAHUN

ART UNIT PAPER NUMBER

2618

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/715,923

Applicant(s)

ALEXIOU, ANGELIKI

Examiner

Tilahun B. Gesesse

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/18/03 &amp; 4/14/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: The specification does not set a clear line between the admitted prior art and the improvement to the admitted prior art or the main invention of the application. The body of the specification discloses the admitted prior art which makes difficult to comprehend the invention for one ordinary skill in the art. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1,6 and 9, lines 1-11,9-11, and 8-11, recite "probability of being less than, and looking up said level in predetermined calibration data of FER versus the channel capacity level so as to provide an FER value".

It is not clear probability of channel capacity is compare to or less than to what type of measurement is compared.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admission in view of Liu et al (US 2004/0125900).

Claims 1,3 Admission teaches a method of evaluating frame error probability FER of a selected communications link in a wireless telecommunications network, the link being between a MMO transmitter comprising one of a base station or mobile user terminal, (see page 4, lines 8-18 and page 4, lines 25-page 5, line 2) comprising the other of the base station or mobile user terminal, (see figures 2 and 3 and page 4 line 8-page 6 ,line 2) comprising:

Admission teaches determining values of instantaneous channel capacity of a MIMO channel of a mobile user terminal at multiple time instructs over a predetermined time, (see page 4 line 8-page 5, line 2 and fig.2)

Admission teaches processing the values to determine a level of channel capacity which any of the instantaneous channel capacity values has a predetermined probability value, (the processor 26 receives channel with  $E_b/N_b$

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and evaluation of instantaneous metric Channel C and link level performance curve FER memory 28, see fig.3)

Admission teaches looking up (memory 28) (see fig. 3)

Admission does not teach level in predetermined calibration data of FER versus the channel capacity level so as to provide an FER value.

However, Liu teaches a channel SNR is measured and determine the capacity each transmitting antenna not great and feed back and tracking transmitter and receiver channel capacity (see page 3, paragraph 0028 and fig.4). Liu teach in similar field multiple in and multiple out transceiver and capacity monitoring technique, then , it would have been obvious to an artisan of ordinary skill in the art to compare the error rate and improve capacity accordingly, in the admission , as evidenced by Liu, in order to improve capacity by providing feedback to the transmission antenna, as result minimize error rate in MIMO communication environment.

Claim 2. Admission does not specifically teach the predetermined probability is 0.5 so the level of channel capacity selected is the mean of the instantaneous channel capacity values in the predetermined period.

However, Liu teaches calculates the capacity of each of the t transmitter antennas from the measured by channel estimator 114, (page 3, paragraph 0024). Then, it would have been obvious to use a limited probability value , for monitoring the channel capacity verses signal to noise ratio.

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Claim 4, admission teaches estimating average signal to noise ratio experienced by the mobile user terminal during the predetermined time period, and also using this to evaluate FER, as a function of both channel capacity level and average signal to noise ratio (, (see page 4 line 8-page 5, line 2 and fig.2)

Claim 5, Admission teaches calculating each value of instantaneous channel capacity from parameters including the channel matrix state of the link, and the average signal to noise ratio experienced by the link at that time (see page 4 line 8-page 5, line 2 and figs.2-3)

Claim 6, it is a method claims which corresponds to method claims 1, above. Then, it is analyzed and rejected for the same reason as set forth in the claim.

Claim 7, it is a system claims which corresponds to method claims 1, above. Then, it is analyzed and rejected for the same reason as set forth in the claim.

Claims 8-9, it is a apparatus claims which corresponds to method claims 1, above. Then, it is analyzed and rejected for the same reason as set forth in the claim.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Winters et al (US 7,006,810) teaches MIMO antennas array (see fig.1 and interference verses channel capacity (see fig.3-4)..

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tilahun B Gesesse whose telephone number is 571-272-7879. The examiner can normally be reached on flexible schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899.

The Central FAX Number is 571-273-8300. For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the Central FAX number, unless an exception applies.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TG

9/18/06

  
TILAHUN GESESSE  
PRIMARY EXAMINER